In the Claims:

1. (cancelled)

2. (amended) An optical temperature sensor [according to claim 1], said sensor comprising:

an emitter having a selective energy emission band, said emitter converting thermal energy to energy within said emission band in response to a temperature of said emitter, and wherein said emitter contains a rare earth element[.];

a light pipe having a first end and a second end, said first end communicating with said emitter;

an optical bandpass filter communicating with said second end, said filter having a pass band within said emission band; and

a detector communicating with said filter, said detector detecting said emitted energy as a measure of said temperature.

3. (amended) An optical temperature sensor [according to claim 1], said sensor comprising:

an emitter having a selective energy emission band, said emitter converting thermal energy to energy within said emission band in response to a temperature of said emitter, and wherein said emitter is composed of a rare earth oxide [.];

a light pipe having a first end and a second end, said first end communicating with said emitter;

an optical bandpass filter communicating with said second end, said filter having a pass band within said emission band; and

a detector communicating with said filter, said detector detecting said emitted energy as a measure of said temperature.

4. (amended) An optical temperature sensor [according to claim 1], said sensor comprising:

an emitter having a selective energy emission band, said emitter converting thermal energy to energy within said emission band in response to a temperature of said emitter, and wherein said emitter is composed of a rare earth aluminum garnet [.];

a light pipe having a first end and a second end, said first end communicating with said emitter;

an optical bandpass filter communicating with said second end, said filter having a pass band within said emission band; and

a detector communicating with said filter, said detector detecting said emitted energy as a measure of said temperature.

5. (amended) An optical temperature sensor [according to claim 1], said sensor comprising:

an emitter having a selective energy emission band, said emitter converting thermal energy to energy within said emission band in response to a temperature of said emitter, and wherein said emitter is a high temperature host material which is doped with a rare earth aluminum garnet [.] ;

a light pipe having a first end and a second end, said first end communicating with said emitter;

an optical bandpass filter communicating with said second end, said filter having a pass band within said emission band; and

a detector communicating with said filter, said detector detecting said emitted energy as a measure of said temperature.

6. (original) An optical temperature sensor according to claim 3, wherein said rare earth oxide is ytterbium oxide.

7. (original) An optical temperature sensor according to claim 5, wherein said host material is yttrium aluminum garnet which is doped with a rare earth element.

8. (original) An optical temperature sensor according to claim 7, wherein said dopant is ytterbium.

9. (original) An optical temperature sensor according to claim 5, wherein said emitter is composed of yttrium oxide doped with ytterbium.

10.-17. (cancelled)